Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A bladder for receiving and storing a fluid in an expansion tank, comprising:
a non-flexible diaphragm having a peripheral edge and an aperture adapted and constructed to receive a flow-through connector; and
a flexible diaphragm having a peripheral edge,
wherein the peripheral edges of the non-flexible diaphragm and the flexible diaphragm are sealed to one another to form a circumferential seam, and
wherein the non-flexible diaphragm and flow-through connector at least partially define a path for fluid to flow into the bladder from the outside of the tank so that as the bladder receives fluid, the space within the bladder remains fluidically isolated from a space between the bladder and an outer shell of the expansion tank.

2. (Original) The bladder of claim 1, wherein the peripheral edges of the non-flexible diaphragm and the flexible diaphragm are heat sealed to each other.

3. (Original) The bladder of claim 1, further comprising a clench ring, wherein the peripheral edge of the non-flexible diaphragm comprises a circumferential recess and the peripheral edge of the flexible diaphragm comprises a circumferential rib, and wherein the circumferential recess meshes with the circumferential rib and the peripheral edges of the non-flexible diaphragm and the flexible diaphragm are clamped together by the clench ring.

4. (Original) An expansion tank, comprising:
an outer shell comprising a side wall and opposite end walls;
a flow-through connector; and
a bladder disposed within the outer shell, the bladder comprising:
a non-flexible diaphragm having a peripheral edge and a flexible diaphragm having a peripheral edge, the non-flexible diaphragm being positioned between the flow-

through connector and the flexible diaphragm and which is connected to one of the outer shell and the flow-through connector such that the flow-through connector provides fluidic communication between an exterior of the tank and an interior of the bladder, wherein the peripheral edges of the non-flexible diaphragm and the flexible diaphragm are sealed to one another to form a circumferential seam, and wherein a space within the bladder is fluidically isolated from a space between the bladder and the outer shell.

5. (Original) The expansion tank of claim 4, wherein the flow-through connector comprises:

a nipple having first and second ends, the first end comprising a plurality of tabs,

wherein the tabs are manipulable between an insertion position and a securing position to secure the nipple to the bladder.

6. (Original) The expansion tank of claim 5, wherein the flow-through connector further comprises:

a first retainer ring fixedly attached to the nipple and disposed between the bladder and the outer shell;

a second retainer ring disposed about the nipple and within the bladder;

a first o-ring disposed between the first retainer ring and the bladder; and

a second o-ring disposed between the second retainer ring and the bladder,

wherein, in the securing position, the tabs press the second retainer ring towards the first retainer ring to create a seal preventing fluidic communication between an interior of the bladder and a space between the bladder and the outer shell.

7. (Previously Presented) The expansion tank of claim 4, wherein the flow-through connector comprises:

a central high pressure inflow channel defined by a non-rotating flow guidance element;

at least one low pressure outflow channel disposed circumferentially about the flow guidance element; and

a contoured cap through which water passes out of the central high pressure inflow channel into the bladder and containing a plurality of inlets into the low pressure

outflow channel having a total cross sectional area less than or equal to the total cross sectional area of the inflow channel,

wherein, when the flexible diaphragm rests against the cap, the bladder is essentially empty, and the tank is adapted and constructed to circulate water such that a first portion of water entering the tank leaves the tank before a second portion of water enters the tank.

8. (Original) The expansion tank of claim 7, wherein the plane of an inlet opening of the inflow channel is oriented perpendicular to the plane of an outlet opening of the inflow channel.